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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/662,868

09/15/2003

Brian K. Allston

89190.039403/DP309564

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22851

7590

05/05/2006

DELPHI TECHNOLOGIES, INC.

M/C 480-410-202

PO BOX 5052

TROY, MI 48007

EXAMINER

BENTON, JASON

ART UNIT

PAPER NUMBER

3747

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/662,868

Applicant(s)

ALLSTON ET AL.

Examiner

Jason Benton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5-18, 20-22 and 26-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 5-18, 20-22, 26-28 and 30 is/are rejected.
- 7) ☐ Claim(s) 29 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-18, 20-22, 26-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suh et al.

The patent by Suh et al. (5,524,582) shows a method of fueling an internal combustion engine with the steps of

- a.) providing a first fueling system (58) for selectively metering a hydrocarbon fuel to the engine;
- b.) providing a second fueling system (22) for selectively metering a hydrogen containing fuel gas to the engine; and
- c.) selecting and controlling a ration of amounts of hydrocarbon fuel and hydrogen-containing fuel gas provided by the first and second systems to the engine (Fig. 2).

The hydrocarbon fuel is selected from the group of gasoline, diesel fuel, and ethanol.

The engine is started on a mixture of the fuel and fuel gas wherein at least 90% of the motive energy of the engine is derived from the fuel gas. The supply ration is progressively changed between the hydrocarbon fuel and the hydrogen –containing fuel

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gas such that, when the engine reaches an equilibrium operating temperature, an optimum fraction of the motive energy of the engine is derived from the hydrocarbon fuel. The optimum fraction is at least 90%.

100% of the motive energy of the engine is derived from the hydrogen containing fuel gas during the starting up of the engine.

The supply ratio is set to minimize the levels of unburned hydrocarbons in an exhaust stream of the engine.

The hydrogen containing fuel gas supply system is a pressure vessel.

The patent by Suh et al. (5,524,582) discloses a compressed gas as the fuel but does not specify the type of gas used. It is the view of the examiner that using hydrogen gas and hydrogen reformants as fuel is well known in the art.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use a hydrogen gas or hydrogen reformant gas as fuel because Applicant has not disclosed that hydrogen or hydrogen reformant provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with a different compressed gas because the combustion properties are predictable.

### ***Response to Arguments***

Applicant's arguments filed 3/18/05 and 1/30/06 have been fully considered but they are not persuasive. It is the view of the examiner that the claim limitation of "an optimum fraction" as is required in claims 5, 11, 21, and 26, does not preclude the

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possibility of 0% hydrogen containing fuel gas. The limitations of dependent claim 15 indicate that the applicant envisions the possibility of 0% hydrogen containing fuel gas. For this reason it is the examiner's opinion that the patent by Suh et al. meets the limitations of the above claims.

***Allowable Subject Matter***

Claims 29 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Benton whose telephone number is (571) 272-4838. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Noah P. Kamen  
Primary Examiner

JB